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# CLEAN WATERS FOR ONTARIO

## Municipal/Industrial Strategy for Abatement Overview

**STOPPING  
WATER  
POLLUTION  
AT ITS  
SOURCE**



### Introduction

In 1986, the Ministry of the Environment initiated the Municipal /Industrial Strategy for Abatement (MISA) to identify and reduce the pollutants discharged from industrial and municipal sources into Ontario's lakes and rivers. The first phase of the program — effluent monitoring for over 300 major industrial direct dischargers — has been completed. The ministry has embarked upon the second phase — the regulation of industrial sector dischargers to reduce the amount of conventional and toxic contaminants being discharged.

The regulations are being developed with input from industry. Each sector has a joint technical committee with representatives from the industry, Ministry of the Environment and an observer from Environment Canada as well as the MISA Advisory Committee (MAC). The MISA Advisory Committee, composed of independent experts from industry, academia and environmental groups, advises the Minister on issues relative to MISA. Draft regulations are also made available for a public review.

In September 1991, Ruth Grier, Minister of the Environment, released a report entitled Municipal/Industrial Strategy for Abatement: Issues Resolution Process Final Report Summary. This report represented the culmination of a process begun by the ministry in 1989 to resolve key generic

issues on procedures and criteria affecting limit regulations development.

The report presented the pollution prevention and control strategy that the ministry will employ to achieve virtual elimination of specific persistent toxic chemicals from discharges into Ontario's lakes and rivers. Strategy elements include:

1. The establishment of effluent limits for a list of sector-specific parameters.
2. The effluent cannot kill fish as measured by standardized tests.
3. The establishment of a bans or phase-outs list for specific persistent toxic substances.
4. The reduction of persistent toxic substances which are not slated for zero-discharge and which do not have effluent limits.

### Background

The goal of MISA is the virtual elimination of toxic contaminants in municipal and industrial discharges to Ontario's lakes and rivers. The fulfilment of this goal is essential for reducing the risk of damage to the ecosystem and to protect human health.

Prior to 1986, Ontario's approach to water pollution abatement was centred on the identification of site-specific environmental concerns. It was followed by control of effluents being discharged from individual industries and municipalities either through legal

instruments (i.e., Control Orders, Requirements and Directions, Stop Orders and Certificates of Approval), guidelines or voluntary abatement programs.

This approach was satisfactory for dealing with pollution problems such as oxygen depletion or conventional pollutants such as suspended solids, sewage and oils. Applied to persistent toxic contaminants, it had several shortcomings. Control Orders varied from region to region or company to company — a level playing field was lacking. Effluent guidelines, by themselves, did not have legal status. Also, there were no procedures in place to assess the impact of toxic contaminants on a local basis, especially for those substances which accumulate in the environment. By the time environmental impacts were assessed and proven, it was often too late to stop the damage.

- MISA targeted industrial polluters from nine sectors that discharge directly into Ontario's lakes and rivers:
  - Pulp and Paper
  - Petroleum Refining
  - Organic Chemical Manufacturing
  - Iron and Steel
  - Mining
  - Inorganic Chemicals
  - Metal Casting
  - Electric Power Generation
  - Industrial Minerals
- plus 412 Municipal Sewage Treatment Plants.

In addition, approximately 12,000 facilities currently discharging into municipal sewer systems are to be regulated through the MISA Sewer Use Control program.

### **New Principles Incorporated into the MISA Industrial Program**

MISA is now shifting from monitoring to prevention and abatement. In anticipation of the effluent limit regulations, many companies have voluntarily initiated abatement actions. The new principles, announced by the Minister in September 1991, include:

- Pollution Prevention
- Bans or Phase-Outs of Persistent Toxic Chemicals
- No Cross-Media Transfer of Pollutants

### **Pollution Prevention**

Pollution prevention is defined as any action which reduces or eliminates the creation of pollutants. It is achieved through raw material substitution, product reformulation, process redesign or modification, or improved maintenance and operations. Since the treatment costs of removing toxic substances by end-of-the-pipe technology can be very high, it can be far cheaper not to produce the persistent toxic chemicals in the first place.

### **Bans or Phase-Outs of Persistent Toxic Chemicals**

Traditional approaches to environmental management have resulted in residual contamination of the environment through accidental or planned releases of persistent toxic chemicals. Banning or phasing out the most persistent toxic chemicals is the only effective means to ensure that they will not be present in our environment. In April 1992, a list of 21 primary substances and 46 secondary substances known to be persistent, toxic and bioaccumulative in the environment was released by the Minister as candidates for bans or phase-outs.

"Persistent" refers to the capacity of a substance to remain chemically stable (i.e. the time it takes for half of the mass of a chemical to be degraded or otherwise lost from a medium is greater than or equal to eight weeks. "Toxic" refers to the capacity of a substance to be harmful to the environment and/or to human health when ingested, inhaled or absorbed even in relatively small quantities. "Bioaccumulative" refers to the capacity of a chemical to build up in tissues to a level higher than the surrounding medium (e.g. fish accumulating contaminants from water). Bioaccumulation can lead to increased exposure via food intake and increasing concentrations of contaminants through the food chain.

### No Cross-Media Transfer of Pollutants

The transfer of pollutants from one medium to another (i.e., from water to land or air) is not acceptable. Applied to MISA, this principle will favor process and technologies which prevent persistent toxic chemicals from entering another environmental medium. For example, it will not be acceptable for a company to reduce its toxic water emissions by increasing toxic releases to air.

### Pollution Prevention and Control Measures for MISA

The data generated under the MISA monitoring program identified specific substances present in discharges from industries. With the pollution prevention and control measures, the MISA program will include the following components:

#### 1. Limits for a List of Sector-Specific Parameters

Regulations specifying effluent limits will be imposed on a sector-by-

sector basis. By setting limits for a list of key parameters, control of key conventional pollutants as well as persistent toxic chemicals can be achieved.

#### 2. No Acute Toxicity in Effluents

Regulations requiring all effluents not to kill fish and waterfleas.

#### 3. List of Candidate Substances for Bans or Phase-Outs

There are more than 100,000 chemicals currently used in commerce worldwide. A number are known to be persistent, toxic and bioaccumulative. These contaminants consequently are a top priority for removal from the environment. Ontario has taken the lead in doing the scientific work to identify the most hazardous substances.

Experience with bans or phase-outs of substances which cause particular harm to the environment, such as PCBs, shows that, when required, industries can reduce the generation of toxic contaminants and/or find alternatives for their use.

A Candidate Substances List for Bans or Phase-Outs was released in April 1992 by Ruth Grier as part of Ontario's commitment to the Great Lakes Water Quality Agreement. It specifies the 21 contaminants on the primary list and 46 substances on the secondary list which are candidates to be eliminated from discharge into Ontario's environment. This list has been given to both the Great Lakes Governors and the federal government which has initiated a consultation process on bans or phase-outs that includes the industry and the public.

#### **4. Toxic Reduction Plans (TRPs)**

As a companion activity to MISA and to reduce the discharge of other toxic chemicals not captured by the Candidate Substances List for Bans or Phase-Outs, the ministry is developing Toxic Reduction Plans in partnership with industry.

Industries will be encouraged to develop TRPs, which provide a logical, comprehensive process and flexible implementation strategy for those reductions. A generic guidance document will be produced to assist industry in developing broad-based, multimedia pollution prevention programs.

These tools will describe how to identify, assess and implement opportunities for prevention planning and how to stimulate the ongoing search for such opportunities. Companies that adopt this approach typically find that they reduce both their operating costs and potential liabilities in addition to helping to preserve the environment.

Currently, the MISA program is proceeding with the first two components. The second two components, bans or phase-outs and toxic reduction plans, are being developed as a separate pollution prevention initiative by the Ministry of the Environment.

For further information, please contact the ministry's Public Information Centre, at 135 St. Clair Ave. W., Toronto, M4V 1P5, tel: in Toronto, (416) 323-4321, in other area codes, 1-800-565-4923.

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